

"... Roger; lift-off and the clock is started . . . This is Freedom 7. The fuel is go . . . oxygen is go . . . Freedom 7 is still go!" Alan Shepard, May 1961

ROUNDUP

NASA MANNED SPACECRAFT CENTER

HOUSTON, TEXAS



"... It certainly is a stark place here. . . . I'm starting down the ladder. It's been a long way. We're here." Alan Shepard, from the Moon, February 1971

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The First Decade of United States Manned Space Flight



Alan B. Shepard, Jr., Commander of the Apollo 14 mission which landed on the Moon in early February 1971, receives a plaque from President Richard Nixon. The award confers on Shepard the "Order of Lunar Putter" for his golf shot on the Moon, the first celestial hole in one.



On May 8, 1961, three days after his successful flight of Freedom 7, Shepard received NASA's Distinguished Service Medal from President John F. Kennedy in a Rose Garden Ceremony at the White House. Although little advance notice of his visit to Washington was given, crowds of people lined Pennsylvania Avenue to cheer America's first spaceman. Others pictured here at the White House ceremony include former Astronauts Scott Carpenter and John Glenn and former NASA Administrator James E. Webb.

Space Program Pioneers recall the moods, problems, and excitement of the past ten years



Robert R. Gilruth

MSC Director Dr. Robert R. Gilruth was interviewed on Monday, April 12, the tenth anniversary of Russian Cosmonaut Yuri Gagarin's orbital flight, man's first venture into space. He had just sent a congratulatory telegram to Moscow.

He remembers well a phone conversation with a reporter in the early morning hours on April 12, 1961.

"It's happened, Dr. Gilruth. There's a man named Yuri Gagarin who is in orbit. Do you have any comment?"

"Well," Dr. Gilruth recalls saying, "I hope he gets down all right."

Gagarin was recovered safely, and "it was a very important first

that the Russians established."

Less than a month later, on May 5, 1961, came Alan Shepard's suborbital flight in the Mercury capsule known as Freedom 7.

There was, Dr. Gilruth remembers, a tremendous uplift of spirits in the American people as a result of the Shepard flight. The success of America's first space mission led to the decision to go to the Moon within the decade of the 60's.

"I can remember sitting in the President's office after Al's flight. President Kennedy was in his famous rocking chair. And Mr. (James) Webb (former NASA Administrator) was there and Al Shepard and a number of others. I can remember the President's saying, 'If they're going to measure us by what we do in space, then let's be first.'"

On May 25, President Kennedy made his now-famous announcement on the U. S. goal of landing a man on the Moon.

Recollecting some of the anxieties surrounding the flight of Freedom 7, Dr. Gilruth noted, "I don't think we had any real doubts that man could stand the stress, the zero-g condition of flight, but there was the fact that we were using equipment which

(See GILRUTH, Page 2)

MSC Deputy Director Christopher C. Kraft recalls four distinct moods or concerns of the early days in the U.S. space program.

"In the first place, we hadn't been in the business very long, so most of us were very much novices in dealing with the problems of space flight.

"We all had a strong feeling that man would be able to do the same things in spacecraft that he'd always been able to do in an airplane, and that the effects of zero-g would not have any profound effect on his judgment or his ability to perform physically.

"But, we still had that doubt. We'd never done it, and putting a man on the end of a torch, which is about what we were doing, was



Christopher C. Kraft

a new and different experience for us."

The second mood was one of strong competition with the Russians.

"We all knew we were behind the power curve relative to trying to beat the Russians, and we were doing everything we could to try and overcome that lag."

This mood, he remembers, was a very demanding one. "People were working furiously in the Mercury program at that time. It seemed as though we never stopped working."

The third feeling was "an undercurrent that existed in the scientific world, particularly among medical scientists, that we were about to take some unnecessary risks with man."

In an earlier Mercury test flight with a primate named Ham as the test subject, some unusual things happened to the monkey which caused some people in the medical world to question whether man might be impaired by space conditions.

Finally, there was also a question as to the readiness of the Redstone booster to fly man. "Problems in the interrelationship between the spacecraft and booster had to be solved before we

(See KRAFT, Page 2)

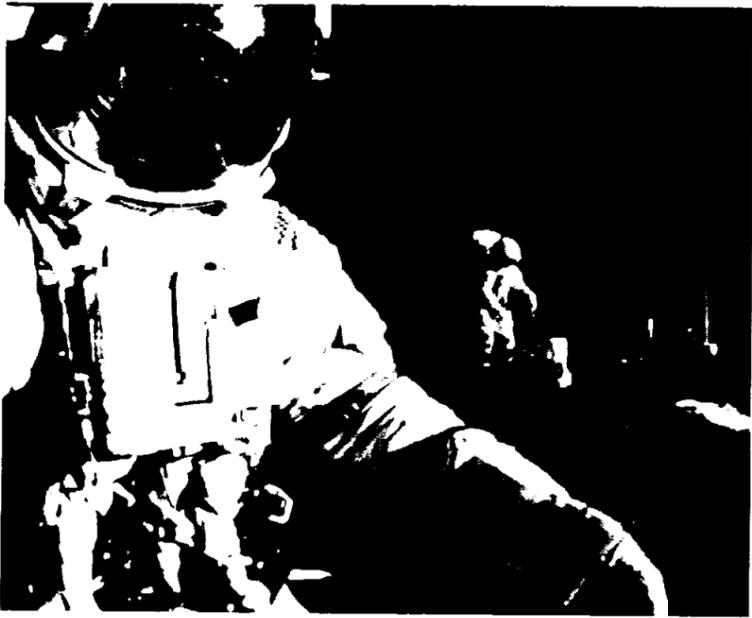


Maxime A. Faget

"That was a long time ago," said Dr. Maxime Faget when asked to recall the days of MR-3. Faget, now Director of Engineering and Development, was chief of the Space Task Group's Flight Systems Division at the time of the first U.S. manned space flight.

One of the major engineering problems confronting Faget's team was in the Mercury spacecraft's environmental control system. "We had a valve that had failed on a previous flight which had essentially depressurized the cabin. Of course, the suit circuit would back that up. But nevertheless, it was a continuing concern."

Confidence in the spacecraft (See FAGET, Page 3)



TEN YEARS LATER—In February 1971, almost ten years after his ride in the Freedom 7 capsule, Alan Shepard walked on the surface of the Moon. Shepard, Commander of the Apollo 14 mission, and Lunar Module Pilot Edgar Mitchell spent a total of over nine hours setting up experiments and collecting rock samples on the lunar surface. Command Module Pilot Stuart Roosa was the third member of the Apollo 14 crew.

Kraft recalls tension before first flight

(Continued From Page 1)

would commit man," Dr. Kraft recalled.

Many of the problems had been overcome by the time of the Alan Shepard suborbital flight. But, by May 5, 1961, the Russians had flown Cosmonaut Yuri Gagarin in an 108-minute orbital flight.

"The Russians had orbited a man, and we did not dare make any mistakes with the Shepard flight. We had to be successful." The pressures and tensions of this situation led to a great deal of excitement and nervousness.

"At that time at Cape Kennedy, everyone was very intimately involved in the countdown. The real launch aspects of the flight were in the count rather than in the flight because the flight was to last only 15 minutes.

"At the Cape, we always had this feeling that if the countdown was not down to T-2 minutes, we didn't become too excited because many countdowns went to T-2 minutes and never went to completion. We really didn't start getting excited until somebody said 'T-2 minutes and counting'."

After his historic first flight, Alan Shepard recalled that in mid-flight he realized somebody was going to ask him what it felt like to be at zero-g, so he decided to stop and see how he felt under those conditions.

Dr. Kraft remembers having a similar thought during the countdown for the Shepard flight. "Somebody said 'T-2 minutes and counting,' and I realized that we were going to do it.

"I tried to take stock of my emotions at that moment, and I remember that we wore telephone-operator types of headsets and microphones which were called 'torture racks' then. I looked down at the mike, and I couldn't see it because I was shaking so hard that the mike was going up and down. I'll remember that as long as I live."

Dr. Kraft recalls his surprise at the overwhelming reaction of the American people to the flight of

Freedom 7

"I don't think any of us appreciated the tremendous impact Alan Shepard's flight was going to have on the United States.

"The result of the flight was a fantastic effect on the morale of this country in that, for some reason, the country was ready to be uplifted by such an adventure and such an accomplishment. Space flight suddenly became a marvelous, exciting accomplishment to the man in the street."

Dr. Kraft is very proud of the Apollo program and the success of its forerunners, the Mercury and Gemini programs. But he also believes that the public has no idea of the complexity of the Apollo missions. The Apollo flights have appeared to be carried out so easily that the public now accepts them as routine and commonplace.

The competition with the Russians during the early days of the Mercury program continued to be evident during the Apollo program.

"We were convinced that the Russians were going to fly around the moon, a much more simple task than going into orbit around the moon or landing on the lunar surface. We believed the Russians were going to do that first, or that would be their goal, because that to the world would say they had beaten the United States.

"It's very difficult for those of us who have lived through this era of expanding space technology to understand the people who feel that we should stop all progress in technology, try to take advantage of the technology we have developed, and apply that technology to solving the world's problems.

"I think it is correct, certainly, to apply the technology. But unless we continue to push on the frontiers of progress and knowledge, we're not going to be in a position even five years from now to compete technologically with the rest of the world.

"I hope that after we get over this present lethargy which exists

Gilruth reminisces and looks toward exciting new projects

(Continued From Page 1)

was unproven. There were always many things which could go wrong.

"The Mercury Redstone-3 (MR-3), Shepard's flight, had to be successful in order for us to go on with the program. In fact, the existence of NASA itself depended on the success of the manned flight program."

There was also, he remembers, a certain amount of discouragement among U. S. space planners at the time of MR-3 because of the earlier orbital flight by the Russians.

"There was a question of whether we should even try to overtake the Russians because of their lead in space. They had the biggest payload. They had put man into orbit, and we hadn't."

Dr. Gilruth recalls the tremendous impact of the lunar goal, coming so closely on the heels of our first successful suborbital flight.

"When we flew Mercury Redstone-3, we had no lunar goal. Our eyes were focused on getting man into orbit and returning him safely.

"The lunar goal came as an emotional thing to most of us, before we had accomplished our first objective. All of a sudden with this great load on our shoulders to get man into orbit, we suddenly said, 'Well that's great, boys, but we really want you to go places. We want you to go to the Moon.'

"When I heard what the President had in mind for us, I had very serious doubts whether we could really do that much in a decade.

"It was a great challenge, and it was a task that was measured just exactly right. It was terribly difficult, yet it was within the power of the American people and our technology and all of the people who worked so hard to accomplish the lunar goal.

"It was a perfect task, started by the fact that we had a Russian lead in space with Gagarin's orbital flight. Then we came along with Shepard's very successful suborbital flight, and this opened the eyes of our leaders to the im-

portance of space and caused American leadership to set forth the task of landing man on the Moon."

portance of space and caused American leadership to set forth the task of landing man on the Moon."

Although the past ten years have been exciting and fulfilling ones in the space program, Dr. Gilruth believes that many fascinating milestones still lie ahead. "There's no question about the importance of the Shuttle plane. The Space Station has great appeal for people who have scientific tasks they wish to perform in space.

"I still think, however, we will want to go back to the moon after Apollo. I believe that we'll have to wait until the middle 80's or 90's, and perhaps this time we'll establish a base there. What would it be like to have a city up there, with a huge glass dome over it?

"I think that the 80's or 90's will see us want to go beyond Earth orbit, beyond the Moon. I don't think we'll be satisfied until we do that."

Dr. Gilruth also spoke of the way in which the Apollo flights have met scientific objectives.

"I think it's just incredible, the science of the Moon and what the Apollo flights have opened up. Men on the Moon have the ability to look around, to gather samples not just at random, but to pick ones the scientists want. Getting an unmanned vehicle to the Moon, though quite an achievement, is simply not equivalent to flying man to the Moon.

"The science goals that some of us foresaw as part of the Moon

expedition are being fulfilled in a very remarkable, satisfying way. But the primary reason for going to the Moon was to advance America's technology, man's ability to fly in space. That was what President Kennedy had in mind, and both of these things have been served."

The first Shepard flight was flown in an atmosphere of intense competition between Russia and the United States. Dr. Gilruth believes that there will continue to be "severe competition." But he also believes that a great deal has happened in the last ten years to open up the lines of communication between the two countries.

"I remember back at the time of the Gagarin flight and Al's flight, I said to myself, 'Someday I'm going to meet the people responsible for the successful Gagarin mission because they had to make the same decisions we had to.'

"Well, when I was in Russia last year, I talked to them about how it was in Russia in those early days and found that they had many of the same kinds of problems we had."

We are now working with the Russians on a mutual rendezvous and docking system which someday may be important for space rescue and mutual aid. Dr. Gilruth believes this is a worthy project. Yet he also recognizes that both Russia and the United States will continue to strive for world leadership in the advancement of technology.

Stamp Club presents special exhibit

Honoring 10 years of American achievements in manned space flight, the MSC Stamp Club will hold a philatelic exhibition, called SPACEPEX, from May 5 through May 8 in the Building One Auditorium. The hours of the exhibit are 9:00 a.m. to 5:00 p.m.

The club will issue a commemorative cover imprinted with a multi-color cachet depicting U. S. achievements in space during the past decade.

Postal service and commemorative cancellations will be provided by a specially designated SPACEPEX substation, the first time such service has been available at MSC.

Visitors to the exhibit will receive a free commemorative cover cut from surplus tracking maps and mission charts and cacheted with the official SPACEPEX seal. The Bureau of Engraving and

Printing will furnish an exhibit of space theme stamps and will also make available for the first time to the public, copies of their Interpex souvenir sheet.

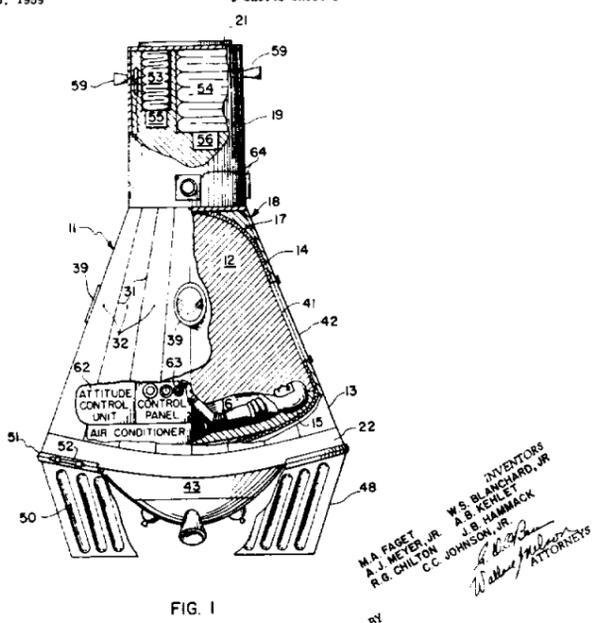
Paul Calle, a NASA artist and designer of the Gemini twin and Apollo 11 stamps, will be guest speaker at the Club's banquet on Saturday, May 8.

Harry Anderson, Space Cover Collection; Alan F. Doyle, Rocket Mail, Tracking Station Covers; Walter Doyle, Mercury and Gemini Commemorative Covers; Dr. Frederick Dawn, Apollo 11 Commemorative Chinese; X. L. Derrick, Apollo 11 Cover Collection; Richard Eddy, Apollo Commemorative Covers; Mark Eddy, Apollo Commemorative Covers; Mrs. Richard F. Gordon, Apollo 12 Stamps and Covers; Dr. Karl G. Henize, History of Space Exploration; A. E. Hillsman, German Rocket Mail; Mark Hreben, Apollo 11; A. N. Johnson, Space Cover Collection; Robert Kimberly, Apollo 11 Cancellations and Cachets; Reuben Krull, John Glenn - James McDivitt; Gordon Nicklos, Space Stamps - Foreign Issues; Mrs. I. H. Passel, Space Collection; Dr. M. I. Radnofsky, Apollo 14 Cover Collection, Apollo 11 First Day Collection; Miss Barbara Radnofsky, Tracking the Flight of Apollo 13, Apollo 8 First Day Collection; Mrs. Lillian Raiche, Apollo 11 Covers; Gale Raymond, Selected Tracking Station Covers and Stamps; Ed Richardson, Canada Rocket Mail; Richard Rodgers, Space Collection; Mrs. Mary Smiley, Space Collection; T. M. Shellshear, Apollo Flights; Jon Tankersly, Space Cover Collection; and the MSC Stamp Club, Permanent Collection of Club Covers and selected items from the Club's Exchange Collection.



Sept. 6, 1966 M. A. FAGET ET AL. 3,270,908

Original Filed Oct. 16, 1959 3 Sheets-Sheet 1



MERCURY PATENT—Spacecraft can be patented, too. Maxime A. Faget and his six co-inventors applied in October 1959 for a basic patent for the Mercury spacecraft. The patent was awarded in September 1966, more than 3 years after the final Mercury mission.

Faget predicts continuing progress

(Continued From Page 1)

parachute system was another worrisome item faced by STG engineers. "Although we had tested the parachute in every possible way we could, I was convinced that regardless of what happened, up to the time that the parachute caught on and opened and did indeed function, that Al Shepard would have been got down safely. The parachute did have to work—there's no doubt about that. It was just that so much was dependent on it."

Yuri Gagarin had made the world's first manned spaceflight aboard *Vostok I* less than a month before the MR-3 mission. "My reaction was of surprise," said Faget, "great surprise that the Russians were able to go into orbit. We had heard rumors that they would. I didn't think that they had developed their technology as far along as they obviously had when they did go into orbit. I never thought that we were behind the Russians technically."

"It was quite clear to me," continued Faget, "that the reasons the Russians were able to get into orbit before we were is that their system would allow greater concentration to carrying out a mission than we were allowed. We had to justify and prove everything we did and, although we certainly carried out the Mercury program in a very short time scale, we still were slowed down a certain extent by the process of having to justify what we were doing."

Quite clearly, the Russians, having gone into orbit in what amounted to practically a year ahead of our orbital flight, perhaps under the best of circumstances we couldn't have been first in orbit. We think we could have been first with the sub-orbital flight under different circumstances."

Faget said that he watched

the MR-3 launch from the block-house area on that fifth day of May a decade ago. "I guess as we look at the Redstone rocket now it looks like a pretty small thing, but I sure was impressed with the fact that Al Shepard was riding on that great big, noisy, powerful beast at that time—a very impressive thing, with all the noise and everything."

Encouraged as they were by the success of the MR-3 mission, the men on Faget's engineering team felt that orbital flight had to be approached cautiously. "Orbital flight—the vehicle going into orbit and returning from orbit—was, of course, a much bigger step from the standpoint of engineering accomplishment. We were very mindful of the fact that we had not yet gotten into orbit, or had a proper retro-sequance to get us out to recover the vehicle. So, we had a lot still ahead of us."

A shift from looking backward ten years to looking forward ten years is a difficult maneuver, but Faget exhibited some of the vision that has punctuated his career in aeronautical and space research. "If the country devotes a reasonable amount of attention to space, I think ten years from now we will have made great strides. Ten years from now, if we are able to develop the shuttle system, we will be in the early stages of capitalizing on that system."

"We are talking now about six and 12-man space stations being put together in a modular manner, but I think we will very quickly leap to more capable vehicles. And I think ten years from now we will once more be talking about extensive manned exploration both of the Moon and of the planets. Whether we go with permanent bases or with fairly extensive expeditions, I'm not sure."

Shepard compares his Mercury and Apollo missions

Alan Shepard, America's first man in space, remembers vividly the thrill of the *Freedom 7* flight.

Comparing that mission to his recent Apollo 14 lunar journey, he says, "*Freedom 7* had to be a more exciting flight for me, purely from the standpoint of pure excitement and all of those things associated with an increased flow of adrenalin.

"As far as Apollo 14 was concerned, my feelings were more those of satisfaction at having accomplished a very complicated mission with a high degree of success."

The reaction of the American public to his two flights cannot be compared on the same level, Shepard feels. Before the first manned Mercury mission, there were many who believed that man could not go outside Earth's atmosphere and return from the weightless environment without mental or physical impairment.

So, Shepard believes, "there was a feeling of relief after *Freedom 7*. We got the spacecraft up, and everybody survived.

"After Apollo 14, we're seeing a different feeling, one manifested from a good working knowledge of what space is about, what it can do, and what it has done in the past decade. Now the space program is understood by the people, and they recognize the long-term benefits."

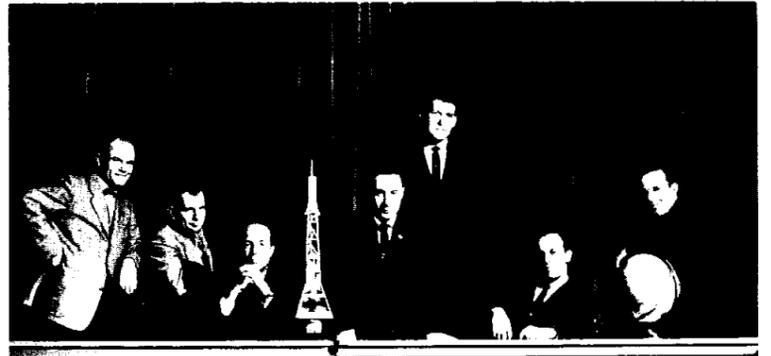
As a result of conversations with many people during his tours after Apollo 14, Shepard is encouraged about the future of the space program in this country. He believes Americans now realize that such advancements as trans-oceanic television and the sensors used in cardiac work have come as direct benefits from space research.

Looking to the future, Shepard believes that "manned and unmanned space flight is just as inevitable as the aviation industry. The tremendous increase in technology in both of these areas is comparable and indicate, to me at least, that space is here to stay."

In the past ten years, "we've seen peaks of excitement and motivation and then some areas where the interest dropped to some degree," Shepard noted.

"I would rather see the progress in the next ten years on a much more orderly basis. Now that we've found out about space, we should continue to take steady steps and make steady expansion of our knowledge, both terrestrial and lunar."

Shepard believes cooperation in space between Russia and the U.S. is beneficial. "For world powers to continue to survive peacefully, there must be discourse between the nations."



ORIGINAL SEVEN—Astronauts (left to right) John H. Glenn, Jr.; Donald K. Slayton; M. Scott Carpenter, Jr.; Virgil I. Grissom; Walter M. Schirra, Jr., Alan B. Shepard, Jr.; and L. Gordon Cooper, Jr. were the first seven chosen for the U.S. manned space flight programs.

Exhibit and Films in Auditorium Commemorate 10th Anniversary

SCHEDULE OF ACTIVITIES AND EVENTS

A Redstone rocket like the one which launched Alan Shepard on his *Freedom 7* flight, a mockup of a Mercury space capsule, and some of the artifacts from Shepard's historic first flight will be on display at the Building 1 Auditorium from Wednesday, May 5, through Sunday, May 9.

Beginning at 9:00 a.m. on May 5, 7, 8, and 9, "*Freedom 7*," the film depicting the May 5, 1961 flight, will be shown in the auditorium alternately with "A Visit to Fra Mauro," which documents Shepard's Apollo 14 mission.

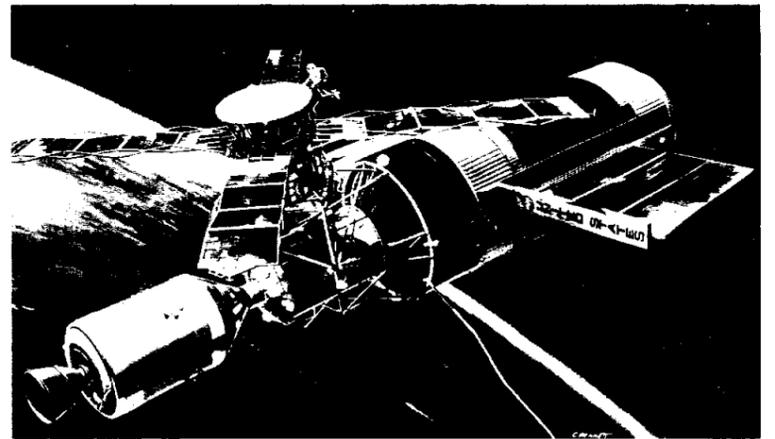
Bus tours will be suspended on May 5. Guided tours of the Mission Control Center (Building

30), Space Environment Simulation Lab (Building 32), and Lunar Receiving Lab (Building 37), will be conducted on that date, beginning at the lobbies of Buildings 30 and 32 and at the back entrance to Building 37. Self-guided tours of Buildings 1, 3, 5, and 29 will be in effect.

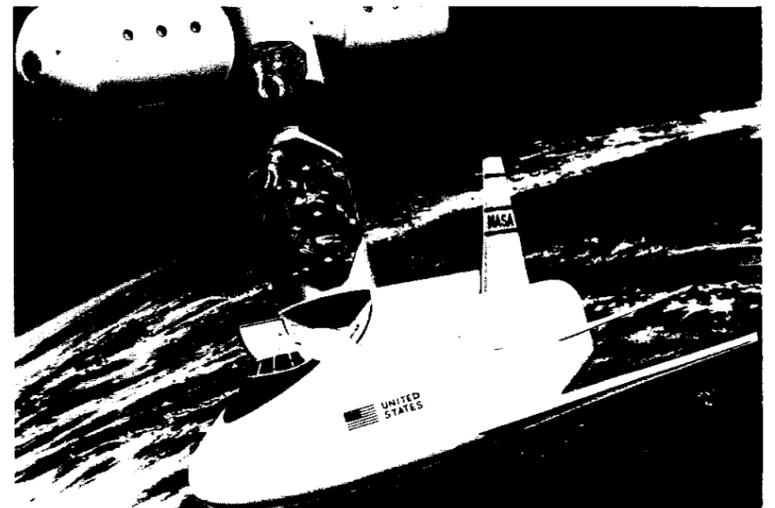
The normal public bus tour schedule will resume on Thursday and Friday, May 6 and 7. Self-guided tours through Buildings 1, 3, 5, and 29 will continue on May 6 through 9.

There will be no guided tours on Saturday May 8, or Sunday, May 9.

Some of NASA's Future Programs

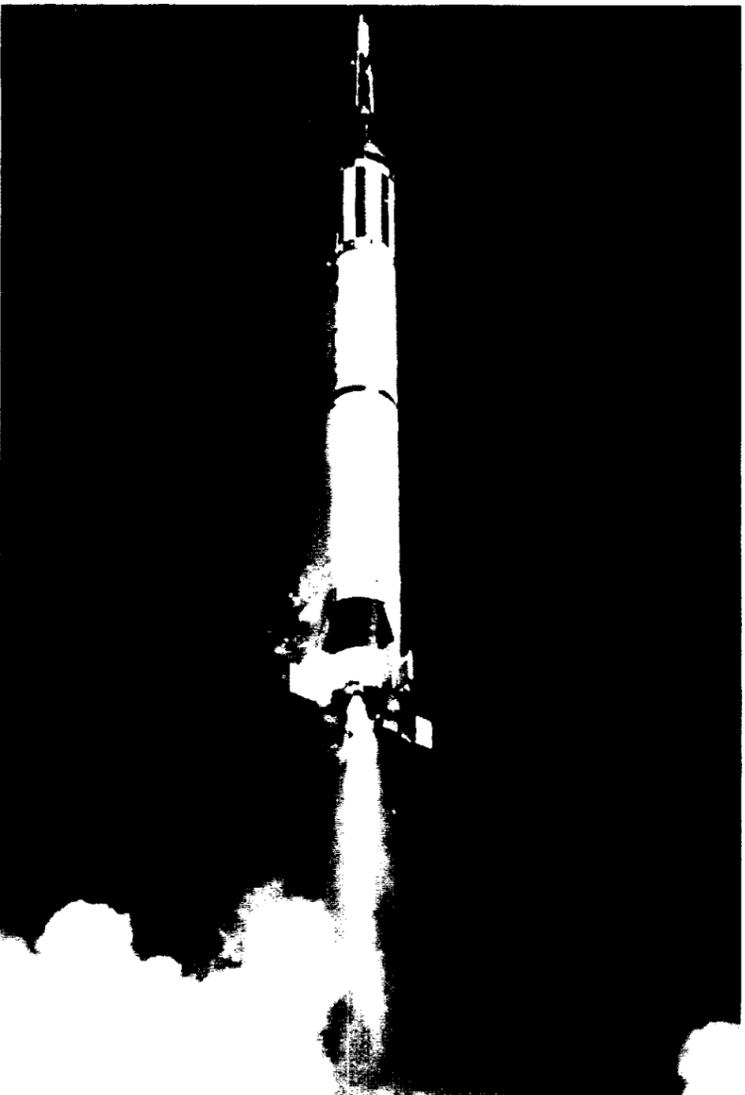
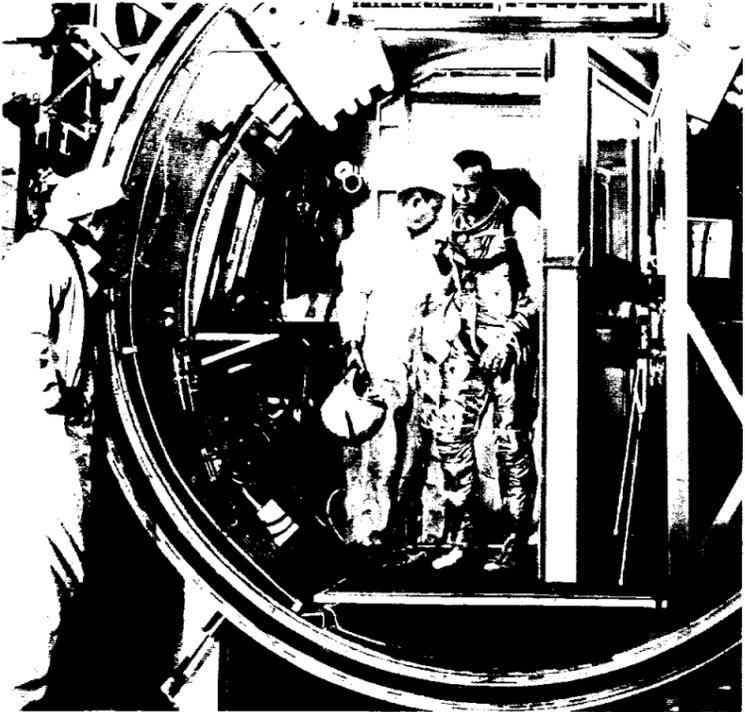
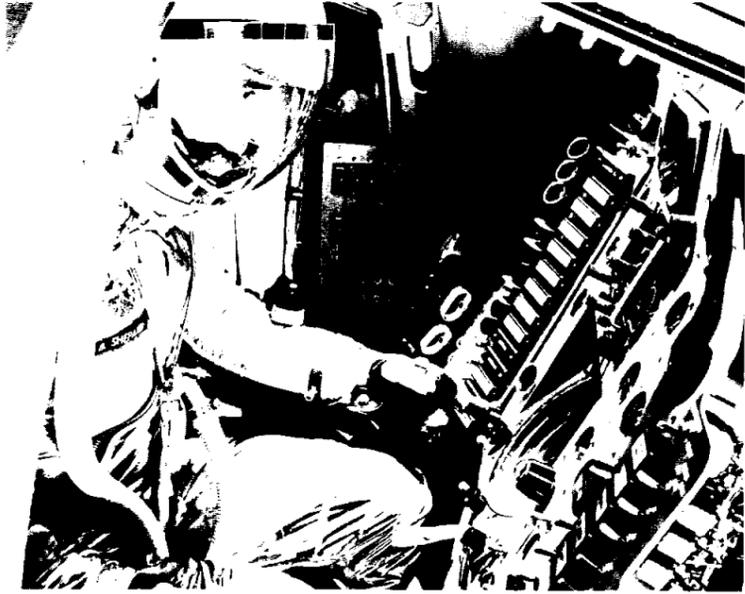


SKYLAB SATURN WORKSHOP—This artist's concept shows the component parts making up the cluster that will orbit Earth during the Skylab Program. In this photo, a Skylab crewman performs an extravehicular exercise to inspect lenses on the Apollo Telescope Mount. Skylab flights, the first of which will be launched in early 1973, may last up to 56 days and will perform a broad set of medical and solar astronomy experiments, among others.



SHUTTLE VERSATILITY—The Shuttle design shown in this artist's concept was changed recently from a straight-wing to a delta-wing configuration. This photograph displays one of the tasks the Space Plane may perform. The Orbiter portion of the two-stage Space Shuttle (the other stage is the Booster) has deployed a canister with space travelers, connecting it to an Earth-orbiting space station. The Shuttle represents a new version of space exploration—one that significantly reduces the costs of operation.

The Mission of Freedom Seven America's First Adventure in Manned Space Flight



On May 5, 1961 at 9:34 a.m., Astronaut Alan Shepard in his Mercury spacecraft called *Freedom 7*, was lifted into space by a Redstone booster. Close to 50 million Americans sat nervously before their television sets to watch the historic event. The flight lasted 15 minutes and 22 seconds and began a new era of American space achievements.

Much of Shepard's time before the flight went into training and simulation activities. Some people feared that the long training period might cause staleness or "over training." After the flight, however, Shepard said that the many rehearsals were of great value in making the mission seem almost routine.

In the upper lefthand photo, Shepard "flies" the mission in the procedures trainer at Cape Kennedy (then called Cape Canaveral). The second photo shows him leaving the altitude chamber in Hangar S at the Cape.

At lower left, the Redstone booster streaks through the sky with *Freedom 7* and Shepard on their way to a date with history.

At top right, Shepard is being recovered from the waters of the Atlantic Ocean by a Marine helicopter piloted by Wayne Koons, who is now with the Shuttle Program Office at MSC.

In the next photo, Shepard and the spacecraft are shown safely aboard the recovery carrier *Lake Champlain*.

Later, Shepard was flown to Grand Bahama Island where he underwent medical and flight debriefings. Arriving at Grand Bahama, he is flanked (third photo at right) by Donald K. Slayton, Lt. Col. Keith Lyndell, and Virgil I. Grissom.

The Mission Control Center at the Cape (bottom right, with Flight Director Chris Kraft in the foreground) was, before and during the flight a scene of tension and excitement. Afterwards, it was the scene of jubilation over America's first manned venture into space, a total and unqualified success.

